DOCUMENT RESUME

ED 195 466 SO 012 979

AUTHOR Singleton, Laurel R.
TITLE Social Studies for the Visually Impaired Child. MAVIS Sourcebook 4.
INSTITUTION Social Science Education Consortium, Inc., Boulder, Colo.
SPONS AGENCY Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
REPORT NO ISBN-0-89994-255-5
PUB DATE 80
NOTE 46p.: For related documents, see SO 012 976-981.
AVAILABLE FROM Social Science Education Consortium, Inc., 855 Broadway, Boulder, CO 80302 ($15.00 per set).

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Audiovisual Aids: Children: Curriculum Development: Discussion (Teaching Technique): Educational Media: Educational Strategies: Elementary Secondary Education: Group Activities: Itinerant Teachers: Learning Activities: *Mainstreaming: Media Selection: Peer Acceptance: Sensory Experience: Skill Development: *Social Studies: Teacher Attitudes: Teacher Effectiveness: Teaching Guides: *Visual Impairments
IDENTIFIERS Project MAVIS

ABSTRACT

Suggestions are made in this sourcebook for adapting teaching strategies and curriculum materials in social studies to accomodate the needs of the visually impaired (VI) student. It is presented in eight chapters. Chapter one explains why elementary grade social studies, with its emphasis on visual media, presents difficulties for VI children. Chapter two suggests ways for the regular teacher and classmates to accept the mainstreamed VI student as a normal person. It explains how to physically guide a VI person in unfamiliar territory. It also describes the role of the resource teacher. Chapter three explores learning through sensory experiences, stressing activities for the entire class which utilize auditory, tactile, and multisensory experiences. Chapter four gives tips to effectively involve the VI child in class discussions, and suggests ways to develop discussion and questioning skills. Chapter five reviews strategies for learning through use and verbal description of pictures, tactile illustrations, films, filmstrips, drawing, and bulletin board activities. Chapter six explains how small group activities, role play, and dramatization can enhance the VI student's participation in social studies projects. Chapter seven explores out-of-class resources, field trips, and guest speakers as additional learning aids. Chapter eight gives three tips for successful teaching: plan ahead, don't overadapt, and work cooperatively with the resource teacher. Appendices list publishers' materials which have been adapted for VI use, guidelines for adapting social studies materials, and special aids for VI students. (AV)

ED195466

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
Victor E. Fuchs
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Social Studies for the Visually Impaired Child

SO 012 979

MAVIS Sourcebook 4

by
Laurel R. Singleton

Laurel R. Singleton is a Staff Associate with Project MAVIS.

Project MAVIS
Social Science Education Consortium, Inc.
Boulder, Colorado

This sourcebook, one of six in a series, was produced by Project MAVIS (Materials Adaptations for Visually Impaired Students in the Social Studies). Other titles in the series are:

Sourcebook 1: *Who Is the Visually Impaired Child?*
Sourcebook 2: *Encouraging Successful Mainstreaming of the Visually Impaired Child*
Sourcebook 3: *Teaching the Visually Impaired Child in the Regular Classroom*
Sourcebook 5: *Important Concerns in the Education of Visually Impaired Children*
Sourcebook 6: *Resources for Teaching Social Studies in the Mainstreamed Classroom*

ISBN 0-89994-255-5

Project sponsor
Social Science Education Consortium, Inc.
855 Broadway
Boulder, Colorado 80302
(303) 492-8154

Project staff
James E. Davis, director
Sharryl Hawke, associate director
Madge Leslie, staff associate
Laurel R. Singleton, staff associate
John Hoge, evaluator
Cindy Ellis, secretary

Copyright 1980 Linc Services, Inc. All rights reserved. For permissions and other rights under this copyright, contact Social Science Education Consortium, Inc.

U.S. copyright is claimed until 1987. Thereafter in the U.S. only, all portions of this work covered by this copyright will be in the public domain. Copyright in other countries remains in effect.

This work was developed under a contract or grant with the Bureau of Education for the Handicapped, U.S. Office of Education, Department of Health, Education, and Welfare. However, the content does not necessarily reflect the position or policy of BEH/USOE/HEW, and no official endorsement of these materials should be inferred.

Contents

1. Introduction 1

2. Getting Started 3
- You and the VI Student 3
- The VI Student and Sighted Classmates 4
- You and the Resource Teacher 7

3. Learning Through Sensory Experiences 9
- Visual Experiences 9
- Auditory Experiences 9
- Tactile Experiences 11
- Multisensory Experiences 12

4. Learning Through Discussions 15
- Making Discussions More Effective 15
- Developing Discussion Skills 16
- Developing Questioning Skills 17

5 Learning Through Pictures and Other Illustrations 21
- Describing Pictures 21
- Enhancing Pictures for Partially Sighted Students 23
- Using Other Illustrations With Partially Sighted Students 24
- Using Tactile Illustrations 26
- Using Films and Filmstrips 29
- Adapting Drawing and Bulletin Board Activities 29

6. Learning Through Group Activities 31
- Small-Group Activities 31
- Role Play and Dramatization 32

7. Learning Through Out-of-Classroom Experiences 33
- Out-of-Class Resources 33
- Field Trips 34
- Guest Speakers 35

8. Ensuring Success 37
- Strategy 1: Plan Ahead 37
- Strategy 2: Don't Overadapt 37
- Strategy 3: Work Cooperatively With the Resource Teacher 38

Appendix A: MAVIS-Adapted Materials 39

Appendix B: Guidelines for Adapting Social Studies Materials 41

Appendix C: Special Aids for Visually Impaired Students 45

Acknowledgments

Many of the ideas and strategies presented in this sourcebook were developed during the adaptation of several sets of commercially available curriculum materials for use with visually impaired students. The contributions of the following consultants, who worked on the adaptations, are gratefully acknowledged:

—Bonnie Rudel, Roland Cardenas, Carol Vaughan, Marcia Hopkins, George Meyer, and Kathy Schaeffer of the Texas School for the Blind, Austin, Texas

—John McMahon, Ann Jones, Bill Davis, Cheryl TenBrink, and Joe Flores of the New Mexico School for the Visually Handicapped, Alamogordo, New Mexico

—Barbara Shalit, New Jersey Commission for the Blind and Visually Impaired, Newark, New Jersey

—Jeanne Vlachos, Los Angeles County Schools, Los Angeles, California

—Edith Ullman, St. Vrain Valley Schools, Longmont, Colorado

—Gayle Fulton, Brighton Public Schools, Brighton, Colorado

Copyright © 1980 by LINC Services, Inc., 829 Eastwind Drive, Westerville, Ohio 43081.

Project MAVIS
Materials Adaptations for Visually Impaired Students in the Social Studies

Project MAVIS
is a project of the Social Science Education Consortium, Inc.

1. Introduction

Hillary Morris is a fourth-grade teacher who has just finished her first year with a visually impaired child in the classroom.

"Of course I was apprehensive when I heard that Randy was going to be in my class," reports Ms. Morris. "I'd never worked with a visually impaired child before, and I couldn't imagine how I was going to manage him and 27 other kids, too. But since the decision had been made to place him in my class, I decided to try to make the year the best I could.

"As I began my lesson planning, everything seemed to work out fairly easily except social studies. Because we spend a great deal of time on maps in the fourth grade, I couldn't figure out how I was going to get a blind child involved—I wasn't even sure it was important for him to learn to read maps. After all, he's never going to be driving across the country. Then there was the problem of all the filmstrips and films we use in social studies. And the field trips—we take a lot of field trips.

"I was ready to ask the itinerant teacher if she would take Randy for social studies, but I decided to give it a try first. It wasn't easy, but it did work out OK. And I think it was really important for Randy to be in class during social studies because there's so much interaction among the students during this period, and Randy needed that kind of experience with his peers."

Ms. Morris's experiences with her fourth-grade class have been repeated in many classrooms across the country in recent years. Although many teachers have been initially hesitant about having blind or partially sighted students in their classrooms, most have taken on the challenge and found the experience rewarding for both themselves and their students.

As Ms. Morris and other teachers have pointed out, some subject areas are difficult for a visually impaired child and therefore difficult to deal with in an integrated classroom. One of these subjects is social studies.

There are several reasons why social studies presents specific difficulties for visually impaired children. One is that social studies is a visually oriented subject. Much of the learning in social studies, especially at the elementary level, results from looking at pictures, maps, graphs, or illustrations and interpreting information from these visual aids. This kind of activity poses obvious problems for a student who is blind or has very limited vision.

A good social studies curriculum also calls for small-group work, field trips, and the use of resources outside the classroom. Such activities, while by no means impossible for visually impaired children, must be planned so that they are as meaningful for VI students as they are for sighted students.

The need for certain kinds of modification of social studies activities for VI students led the staff of Project MAVIS, sponsored by the Social Science Education Consortium, Inc. and funded by the Bureau of Education for the Handicapped, to explore ways in which the typical elementary social studies curriculum might be adapted to facilitate the mainstreaming of such students. Working with both vision specialists and classroom teachers, Project MAVIS has produced adaptations for several sets of commercially published and widely used social studies materials. The MAVIS materials include student materials prepared in three media (braille, large print, and audiotape) and teachers' editions supplemented by suggestions for adapting activities for use with VI children in a mainstreamed classroom. (See list of MAVIS-produced materials in Appendix A. Appendix B presents a process for adapting materials which you may find useful.)

In the course of adapting these materials, the MAVIS staff concluded that certain teaching strategies are common to all social studies materials. These strategies, while not unique to social studies, are an integral part of the subject. Among the most important are direct learning through the senses, discussion, visual interpretation of pictures and illustrations, small- and large-group activities, and out-of-the-classroom experiences.

In examining the common strategies and how they are used in different situations, the staff found that all of them could be adapted in some way for visually impaired students; nothing about them would prohibit the participation of a visually impaired child. Some strategies, such as inquiry activities involving interviewing, do not require adaptation. Others, such as role playing, require minimal adaptation. Still others—for example, interpreting information from pictures—require substantial modification for meaningful participation by the VI student.

This resource book is the result of what the Project MAVIS staff and consultants have learned in adapting social studies materials for use with visually impaired students in mainstreamed classrooms. Our work has convinced us that the adapting strategies we are suggesting will not only facilitate integration of the VI student with sighted classmates but will indeed improve social studies instruction for all students.

2. Getting Started

Nearly all the teachers interviewed by the Project MAVIS staff about their experiences in mainstreamed classrooms reported that the most difficult part was getting started. How do you, the teacher, introduce a visually impaired child into the classroom? How do you deal with your own feelings? How do you handle the questions or concerns of the VI child? How do you address the concerns of sighted classmates? How do you establish a good working relationship with the resource or itinerant teacher?

Although teachers must work out their own individual plans for getting the school year started in a mainstreamed classroom, some strategies seem to work more effectively than others. This section describes those strategies.

You and the VI Student

Dealing with your own feelings about teaching a VI child is perhaps the most difficult step in getting started. The teachers we talked with expressed widely varying feelings—apprehension about whether the child's needs would be met, resentment at being asked to teach a disabled child as well as the usual number of sighted students, and excitement about the challenge. All are natural reactions to the situation. The key to success is not to let your own feelings of apprehension or resentment dictate your behavior toward the VI child. The following guidelines may be helpful:

1. Expect the same behavior of the VI student that you expect of sighted students. The VI student needs to learn social limits.

2. Apply the same academic standards to the VI student that you apply to sighted students. If you accept sloppy, incomplete, or otherwise inferior work from the VI student, your position with all the students will be undermined.

3. Don't treat the VI student as fragile or sickly. Your acceptance of the student as a fully capable class member will set the tone for the rest of the class.

4. Don't overpraise the VI student, but do provide plenty of feedback about performance. Sighted children receive frequent written and oral feedback on their work. A sighted child may refer to a written comment many times, show it to friends and parents, and thus receive multiple

benefits. For the VI student, written feedback is less frequent and meaningful. Since you may have to wait for the itinerant or resource teacher to transcribe braille assignments into print, oral feedback is likely to be delayed. You might want to prepare a cassette tape of comments about each assignment in order to give the VI student feedback in a form which can be referred to and played for others.

The next step in getting started is to learn as much as you can about the VI student's vision condition, its effects on classroom performance, and the student's previous educational experiences. Ask the resource or itinerant teacher if a classroom evaluation of the VI student's use of residual vision would be appropriate. The more you know about the child, the better able you will be to select effective strategies.

You can help the VI student get started by providing a thorough orientation to the classroom. You may want to do this on the day before the other students come into the classroom. This "head start" may give the VI child extra confidence in moving around the room and meeting other students. Help the student establish a system for organizing personal belongings and special equipment. Never move personal belongings without telling the VI student; finding an object that is only a foot or so out of its normal location can be a time-consuming and frustrating task. Classroom equipment should not be moved until the child is thoroughly familiar with the room's layout. Even then, any changes should be explained and explored.

The VI Student and Sighted Classmates

Many teachers interviewed by the project staff stated that they had been worried about peer reaction to having a visually impaired student in the classroom, especially when the VI student was new to the school. Some teachers reported that they had discussed the VI child's arrival with the rest of the students before the child first appeared in the classroom, believing that this approach would allow more open, uninhibited discussion by the sighted students. However, upon reflection several decided that it might have been better to include the VI child in the classroom from the outset so that the issue could be addressed with all the students, since discussing the VI child in his or her absence tended to foster separation rather than integration.

One approach that seems to work well is to conduct a series of lessons at the beginning of the school year (or whenever the VI child enters the classroom) on likenesses and differences among people. This kind of lesson, which is a standard topic in social studies units, can be carried out as part of the regular curriculum—thus avoiding the implication that the activity is taking place only because a visually impaired child is in the class.

In presenting such lessons, you should help students recognize that each student is like other students in certain ways but different in other

ways. Although part of the discussion will focus on physical differences, differences in ethnic heritage, family background, and intellectual and physical abilities should also be discussed. While the VI child's vision condition will of course be acknowledged, efforts should also be made to point out how the VI student is like other children.

In a follow-up lesson the students' attention can be turned to a discussion of stereotypes as untrue or oversimplified ways of describing people simply because they are members of certain groups. After discussing racial and sexist stereotypes, you might read a passage from a book which includes a stereotyped portrayal of a disabled person. Ask students how such a passage influences the way they feel and how it might make a disabled person feel. Encourage the students, including the VI student, to discuss how they acquired their attitudes about different groups of people, whether their feelings are positive or negative, and whether their perceptions are true or false.*

Another kind of lesson might be focused specifically on visually impaired people and how they function in a sighted world. The emphasis in this lesson should be on clearing up misconceptions about VI people and on demonstrating that, while visually impaired people must do some things differently, they are able to live full and productive lives. During this lesson, special equipment (such as a braille writer or a magnifier) that the VI child will be using can be explained to the other children. Let the VI child explain the equipment if he or she is willing to do so. The class can also discuss the various aids that VI people use to get around (sighted guide, cane, guide dog).

It would be helpful at this time to show sighted students techniques for guiding the VI child when required. Either you or the resource teacher can demonstrate the techniques. Let students take turns practicing the techniques with blindfolded classmates, giving students experience with both the technique and simulated blindness. The following tips are important to remember in learning to guide a VI person:

1. Hold your arms downward in a relaxed position. The VI person will place his or her hand lightly on your arm above the elbow and walk slightly behind and to one side of you.

2. Walk naturally. Don't push or pull the VI person. The VI person will be able to feel when you are going faster or slower or going up or down steps.

3. When you approach a curb, step, or other obstacle, give the VI person a verbal warning and indicate whether it is a step up or a step down.

4. Remember to watch out for low-hanging objects and other obstructions.

---

*This activity was adapted from one described by Beryle Banfield et al. in "Teaching About Handicapism: Detecting and Combatting Bias," *Interracial Books for Children Bulletin*, vol. 8, nos. 6 and 7 (1977), pp. 22-24.

You might also point out at this time that, although the VI student will not need any help moving around the classroom, all students should make sure that chairs are kept out of aisles, drawers are kept closed, and doors are not left half-open. Stress that observing these rules will not only help the VI child, it will also make the room safer for everybody.

Other topics you might want to discuss are ways in which VI persons participate in such sports as skiing and beepball (an adaptation of baseball in which the ball and bases "beep" at different pitches), how they identify different types of money (coins by size, weight, and the roughness or smoothness of the edges; bills by folding each denomination in a different way or using a wallet with separate compartments for the various denominations), and how they pour and cook. You might want to ask a visually impaired adult to visit the class and demonstrate some of these techniques.

Another effective strategy is to present a film or story which emphasizes the positive aspects of VI people's adjustments to their disabilities. A number of films appropriate for various grade levels are available; check your district's audiovisual catalog to determine what is available. A recommended book for primary students is *Sound of Sunshine, Sound of Rain* by Florence Parry Heide (Parents' Magazine Press, 1970). Older students might enjoy reading Beverly Butler's *Gift of Gold* (Dodd, Mead, 1972). Be careful not to talk only about famous disabled people. It is important for your VI student to understand that he or she need not be Helen Keller to be successful or happy.

It is impossible for a teacher to predict how sighted students will react to a visually impaired classmate. Undoubtedly, attitudes will vary among the children, but many of them will probably have misconceptions about how to be friends with the VI child. By presenting a series of lessons such as those described in this section, you can help students understand that the VI child is much like all other students and can be treated the same way that sighted classmates are treated. Above all, the teacher should emphasize that the VI student does not need to be "taken care of" and will not be treated or graded more leniently.

If the VI student is not new to your school, it is likely that no introductory activities will be necessary. However, some of the activities suggested in this section might be usefully incorporated into social studies lessons throughout the year when differences among people are discussed. Your knowledge of all the students in the class will help you determine whether introductory activities are needed.

Finally, remember that the teacher sets the tone for any classroom. Your own attitude and demeanor toward the VI child will be reflected in the sighted students' interaction with the child. If you treat all the students equally, they will find it easier to work together and you will find it easier to work with them.

You and the Resource Teacher

In nearly every school system in the United States, teachers who have disabled children in their classrooms have access to help from specially trained teachers. Whether these teachers are designated as itinerant or resource room teachers or as consultants, their function is, in part, to help classroom teachers with whom disabled children are placed.

In the case of a visually impaired student, the resource* teacher can help the classroom teacher in at least three ways: (1) planning adaptations and supplying any special materials needed to make activities effective, (2) helping the classroom teacher assess the child's vision problem and how it affects his or her classroom functioning, and (3) helping the teacher understand the total child—what aspects of the child's behavior are related to his or her vision problem and what aspects are simply a part of the child's personality.

The classroom teacher can in turn help the resource teacher by providing feedback on the VI student's performance. Of particular help to the resource teacher will be information about skills with which the VI student has difficulty (e.g., reading tables, organizing personal belongings, using tape) and areas about which the student appears to know much less than would be expected of a sighted student of the same age (e.g., what is in a kitchen, what kinds of jobs people do in a school, what a river is).

Accept the resource teacher as a partner in the educational system and begin working together as early as possible. Remember that calling on a resource teacher for assistance is not a sign of incompetency but rather a recognition of the need for specialized help. Each of you has your own particular areas of expertise. When those capabilities are used together in a cooperative way, the VI child—and all the other children in the classroom—will benefit.

*Throughout this sourcebook, specially trained teachers of the visually impaired will be referred to as "resource teachers," as they serve as a resource to classroom teachers regardless of their official designation.

3. Learning Through Sensory Experiences

Elementary teachers generally agree that the most effective learning for young children is that which comes from direct sensory experience. Seeing, hearing, tasting, touching, or smelling an object makes more of an impact on a child than reading a description of the object. But what happens with a child who has limited or no use of one or more senses?

It is sometimes assumed that a child who has a visual impairment learns nothing or relatively little through his or her sense of sight. Likewise, it is widely believed that the other four senses of visually impaired people are mysteriously superior to those of sighted people. Neither assumption is entirely valid. Only a small portion of VI people are totally without vision, and many partially sighted persons use their limited vision quite effectively. As for the superiority of the other senses, there is no mystery about it. Many VI people do develop their other senses quite effectively, but they, like everyone else, must work at doing so. For the classroom teacher, the question is how to get *all* children to use *all* of their senses to capacity.

Visual Experiences

Much activity in elementary classrooms is visual because young children tend to learn well through their eyes. Obviously, this may not be true of a visually impaired child. However, unless the child is totally blind (without even light perception), it is important to help that child use whatever vision he or she has. Because vision problems vary so much, it is impossible to suggest specific techniques for encouraging vision use here. The most effective strategy is to consult with the resource teacher about techniques that will help the VI student.

Auditory Experiences

Because of VI children's limited ability to acquire information through their eyes, you must rely heavily on auditory input. While it is natural to assume that every VI child is a good listener, that may not be true: such a child may not have exceptional or even average listening skills. You will need to observe the child closely for signs of difficulty in attending to or comprehending oral information. Here are some signs of possible listening problems:

1. Inability to remember and follow oral instructions.

2. Dislike of word games or other games which require responses to verbal directions.

3. Difficulty in peer relationships because of inability to follow the course of other children's conversations.

4. Confusion of similar-sounding words.

5. Difficulty in learning things in sequence (e.g., days of the week, months of the year) or doing things according to a set of sequenced instructions.

6. Failure to understand relationships between characters and ideas, motives, or actions about which information is received auditorily.

Should the VI student exhibit several of these problems or show other signs of poor listening skills, you may wish to have the student's listening skills formally tested. Consult the resource teacher about this possibility.

If listening skills are a problem, provide written instructions to supplement oral instructions whenever possible. When oral instructions must be used, break larger tasks into smaller subtasks so that the instructions for any given task will not involve a long sequence of directions. As often as possible, supplement oral discussions of abstract concepts with concrete experiences or opportunities to manipulate three-dimensional objects.

A variety of curriculum materials designed to develop listening skills are available. These materials contain useful suggestions for skill-development activities. They can also be helpful in identifying discrete listening skills around which you can structure activities you develop for your own class.

At the primary level, practice in using various kinds of oral input—for example, tapes, one-to-one discussions with classmates, and large- and small-group discussions—is often beneficial. Students can also profit from such activities as listening to and identifying a variety of environmental sounds (either heard in the classroom or tape-recorded), playing simple games which involve careful listening (one example is "Simon Says"), or retelling simple stories that have been read aloud by the teacher.

At the intermediate level, relating the spoken word to the printed word is a useful exercise for developing listening skills. If a taped copy of the social studies text is available, using it with a braille or print copy can be quite effective. Ask students to identify key sentences in the braille or print text and then find the same sentences on the tape. Allow plenty of opportunities for structured listening; follow up the playing of a tape or the reading of a story with questions that test comprehension. Before reading a story aloud, give students a list of questions whose answers they should listen for. The questions you ask will depend on the grade level and listening skills of your class. For example, for a group of sixth-graders who are having difficulty interpreting oral information, the questions might require students to identify the main idea of a passage,

predict outcomes, and paraphrase.

Remember that listening does not happen in isolation, even for a blind child. Information obtained through listening must be integrated with information gained through the other senses. Thus, most listening skills activities can be successfully integrated into ongoing classroom activities in which students will be learning through several senses simultaneously.

Tactile Experiences

Tactile skills are very important to VI children, particularly those who read braille. In social studies, the importance of tactile skills is further emphasized by such tactile learning materials as maps and graphs.

Good tactile skills depend somewhat on maturation; that is, tactile skills cannot be fully developed until children have the necessary muscle coordination and manipulative ability to handle objects easily. Thus, activities which develop fine motor coordination and manipulative ability, although technically outside the realm of social studies, may improve a child's ability to use special tactile materials prepared for social studies classes. You should attempt to provide frequent manipulative and physical activities and encourage the VI student to participate in them.

The most effective tactile experiences make use of real objects or artifacts. For example, if the class is studying the use of hand tools in human culture, giving students the opportunity to examine a variety of hand tools will provide a logical and meaningful supplement to the lesson. If you are teaching a unit on Japan, you might display artifacts of Japanese culture, past and present.

No teacher can be expected to have realia to display with every lesson, of course. As an alternative, models can be used effectively to develop both tactile skills and understanding of various concepts. However, models should not be used as a substitute for experience; they should only be used when the real item is too big, too far away, or too dangerous for students to examine. In such cases, models can give VI students perceptual or cognitive "maps" of objects or places they cannot directly experience.

The models you use should be as accurate as possible in detail, proportion, and function. Students should be given ample time to examine models. Remember, however, that simply feeling a model will not necessarily convey an accurate impression of the real item it represents. The sighted child can see the entire model and thus conceptualize how the various parts fit together. Touching these parts does not lead to the integration achieved through sight, because there is no replacement for that unifying function. Verbal explanations are therefore needed to provide integration and sequencing. The relationship between the size of a model and the size of the object it represents may be particularly difficult for a VI child to grasp. Try to describe the size of the real object in terms of something the VI child has experienced directly.

Three-dimensional models of familiar rooms, buildings, or neighborhoods can also be used effectively in helping VI children develop concepts of spatial relationships. Such models are also useful as a preliminary step to introducing maps. Although three-dimensional modeling is likely to be interesting to sighted children as well as VI children, such activities do require considerable preparation by the teacher. You can simplify the task by creating a "pool" of modeling materials. Establish the pool at the beginning of the year so that you will have a variety of materials available when you wish to start a modeling project. Encourage students to contribute to the pool. Sort the materials into recognizable categories and keep them in open boxes in the classroom so they can be used or added to easily by the children. Items which will be useful in the pool include wooden blocks, Lego sets, and other construction toys; dollhouse furniture; small dolls and miniature animals; buildings and trees from model railroad sets; small boxes; and other containers of various shapes. Yarn, string, buttons, sandpaper, modeling clay, and fabrics of varied textures will also be useful. The children will probably have good ideas about other items which can be used to represent various objects.

Models can be made on a variety of bases, including corkboard, sticky sponge paper, Cellotex (ceiling tile), modeling clay, or plywood. The kind of base that works best depends on the kind of model you are making. For instance, for a model which will involve only vertical building, such as a model of a city, corkboard or plywood may be preferable. For a model which will have contoured surfaces, such as a river valley, modeling clay will probably be the best base.

When you introduce students to modeling, start with an environment the VI student knows well—perhaps the classroom or an area near the school. Although most sighted students are able to model unfamiliar areas fairly easily, such a task is very difficult for VI students, since they have no concept of the spatial relationships in unfamiliar areas. Only after they are well-acquainted with modeling will they be able to attempt such a task.

Multisensory Experiences

Although auditory and tactile skills are particularly important, skill in using all four senses can contribute to VI children's ability to conceptualize the world around them. There are a variety of enjoyable activities that can help children develop the ability to observe by touching, tasting, hearing, and smelling.

Try establishing one of the corners of your classroom as a "sense corner."* Each week, have students use a different sense to identify objects

*This activity was adapted from one described by Wenda L. Scheffers in "Sighted Children Learn About Blindness," *Journal of Visual Impairment and Blindness* (June 1977).

in the corner. During "taste week," provide sweet, sour, salty, and bitter items with consistencies varying from gritty to crunchy to sticky. When students are to identify objects by smell, provide such common aromas as tar, leaves, pine needles, flowers, and favorite foods. During "hearing week," use a tape with a number of different sounds recorded on it. These sounds should represent animal, human, and mechanical sources and should include both indoor and outdoor sounds. (Your school's media center or library may have prerecorded environmental sound tapes, such as those produced by Developmental Learning Materials.) For "touch week," provide objects with various shapes and surface characteristics—a piece of velvet, a polished rock, a rough rock, a pasty substance, etc. It may be possible to coordinate these activities with your science program.

Another enjoyable activity is a sensory treasure hunt. Students work in teams of two, with one member blindfolded. The blindfolded student interprets the clues while the other student guides him or her from place to place, using the techniques described in the previous section. Conduct two hunts so that every student has a chance to interpret the sensory clues which tell them where to look for the next clues. Some examples of sensory clues might be a tape recording of a flushing toilet (to the washroom), crackers spread with peanut butter (to the cafeteria), and a basketball or tennis shoe (to the gymnasium). The prizes for students who complete the hunt should be objects which are attractive to one of the senses other than sight.

Children may also enjoy taking "sense walks" around the school yard, naming as many things as possible which they observe through senses other than sight. To avoid too much reliance on one sense, have the children try to find an established number of things which they can identify through each sense.

Although these activities are designed specifically to promote sensory awareness, practice in using all five senses can be incorporated into regular social studies lessons as well. Tape recordings of various sounds can be used to reinforce listening skills in almost any social studies lesson. For example, an appropriate supplement to a lesson on the life of a factory worker would be a tape of factory sounds. Listening to the music and sampling the foods of various cultures and ethnic groups can enhance cross-cultural understanding. Note that providing such enriching experiences need not require a great deal of extra work on your part; students can prepare foods for tasting or tapes for listening as extending activities.

4. Learning Through Discussions

Among the many skills taught in social studies, none is more important than discussion skills. Although most children like to talk, discussion skills—the abilities to ask relevant questions, formulate precise answers, and participate in oral group activities—do not come naturally. Much social studies content deals with examining attitudes, sources of information, and values; discussion skills are critical in such examinations. For visually impaired students, discussions skills are especially important because such students rely heavily on auditory input.

This section contains suggestions for making discussion more effective for all students and for helping them improve their discussion skills.

Making Discussions More Effective

There are several simple tips you can use to make discussions more effective for sighted as well as VI students. First, remember that if you can provide a concrete experience to supplement the discussion it will be a much more meaningful experience for the VI student. This is of course not always possible, but even relating the discussion to actual experiences the child has had will help overcome the problem of verbal unreality which many VI children have.

If the VI student has not been in a mainstreamed setting before, you will need to explain that students get your attention by raising their hands. When you call on students in class, be sure to say their names rather than simply nodding or pointing at them. Knowing who is talking will give the VI student a fuller sense of participation. Always say the VI child's name when you call on him or her, even if the student is partially sighted. This practice will eliminate uncertainty about who was called on.

When you write on the chalkboard during class, verbalize as you write. New words should be spelled orally. For the sake of partially sighted students, make sure your chalkboard is cleaned daily. Write in large letters with a broad stroke. If sighted students will be referring to a list on the chalkboard throughout the discussion or later during the class, encourage the VI child to make a list for reference. If you do not wish to do this because of the child's limited writing skills or the extra time it may take, read segments of the list aloud when you refer to them.

Many teachers are concerned about the need to modify the language they use in class discussions. It is not necessary to avoid using such

phrases as "look at" or "let's see." These phrases are part of the everyday spoken language which the VI child hears and uses. You should, however, avoid using such vague locational terms as "here" and "there." These words will have meaning to the VI child only if you physically demonstrate the locations. Specific locational phrases—for example, "on the left side of your desk" and "next to the table at the front of the room"—are more meaningful. When using directional terms, be sure to give the directions in terms of the student's body rather than your own.

Because VI children must rely on verbal instructions to find things without the assistance of visual clues, it is important to help them develop understanding of such terms as row, column, top, bottom, slanted, straight, curved, left, right, side, back, front, top left corner, bottom left corner, top right corner, and bottom right corner. Understanding these directional words will help the student locate things on a textbook page, model, or map or in the classroom with a minimum of assistance. Many of these concepts are developed in the child's orientation and mobility training, but you can reinforce their development by using the terms in class and making sure the VI child understands them. At the primary level, such simple games as "Hokey-Pokey" and "Simon Says" can be used to reinforce these concepts. If you plan to have students read aloud during a class discussion, you may want to have the VI student practice in advance if he or she has difficulty with oral reading.

Developing Discussion Skills

Because much of VI children's learning depends on discussion—particularly discussion of information conveyed visually—it is important that they develop good discussion and questioning skills. You can contribute to the development of these skills by knowing what types of questions to ask and how to ask them effectively. Although questions can be classified in a number of ways, the two most significant categories for our purpose are *convergent* questions, which aim for specific answers, and *divergent* questions, which encourage discussions to branch into new areas. The questions you use should be tailored to the specific needs of the lesson. You should also vary your own role in the discussion in order to provide students with opportunities to participate in the discussion process in different ways.

For example, in discussing a particular picture you may first wish to use questions that will elicit specific information which must be conveyed to the VI child. When this information has been presented, you might switch the course of the discussion by asking an open-ended question designed to bring out students' interpretations of the information in the picture. Rather than carefully structuring the discussion as you did

earlier, allow students to discuss their interpretations in a self-directed way, framing their own questions and answers.

The physical arrangement of your classroom can facilitate discussion, particularly discussions in which you play a minimal role. Having all the students sit in a circle will encourage sighted children to talk freely and address questions to one another. This arrangement may also make participating in an independent, non-teacher-directed discussion easier for a VI student, since the other children will be able to see the VI child and will thus know when he or she wishes to say something. If you sense that the VI child wishes to participate but feels hesitant about breaking into the discussion, interrupt the flow by suggesting that students should hear from classmates who haven't had a chance to say anything. This will provide the momentary pause needed for a shy student to enter the conversation.

Working in groups of various sizes will also help students develop their discussion skills. Pairs or very small groups often work well, especially with very young children who may not have developed confidence in their discussion abilities. Small groups provide different points of view, yet enable each group member to participate in resolving disagreements.

Another method of developing students' confidence in their discussion abilities is to structure your questions so that students are successful with easy questions early in the discussion. They will then be more confident about attempting to discuss difficult questions as the discussion progresses.

Developing Questioning Skills

The questions you ask will not only contribute to good discussions, they will also serve as models for the students as they develop their own questioning skills. Students at the primary level may not really understand the difference between questions and statements, and they may not realize that information can be obtained by asking questions. To develop these understandings, students will need both exposure to many different kinds of questions and practice in using questions. You can help develop students' awareness of questions and their functions by pointing out occasions when they use questions to get information. Remind them how and why you ask them questions. Discuss the "question" words—who, what, where, why, when, and how—and ask students to think about why they use these words. Activities such as these help prepare students for learning how to ask effective questions.

Three steps are involved in asking effective questions: (1) establishing a purpose, (2) phrasing the question, and (3) deciding to whom the question should be addressed. To help students learn how to establish a purpose for asking questions, create hypothetical situations in which they need to ask questions in order to solve problems. At the primary level, these should be situations in which the students might actually find themselves. For instance, ask them to imagine that their mother has sent

them to the grocery store to get a box of soap. They have searched the store and cannot find the soap. What should they do? At the intermediate level, the situations can be more abstract. For example, in a lesson on pollution, you might point out two newspaper articles which present opposite views of the causes of a certain form of pollution. Encourage the students to ask questions about why the articles contradict each other and which one is right. Older students are often stimulated to ask questions in situations in which they are exposed to information that is contrary to their beliefs, presented with conflicting views, or exposed to a mystery-type situation.

Students will also need help in framing productive questions. Using the hypothetical situations created to help students learn to establish a purpose, have students suggest what questions they would ask. At the primary level, you may need to provide a list of alternative questions from which the students can select the best one. At the intermediate level, students should be able to frame their own questions. Have the students role-play the situation, trying out the questions they have written. If the questions do not result in the desired information, tell them to revise the questions and try again. Make sure that the situations you create demand specific information so that students will get accurate feedback on whether their questions are working.

Another activity that can be used to develop the question-framing ability is to ask one group of students to make up a list of answers to present to their classmates in a game-show format. The rest of the class can then try to think of questions that fit these answers. Still another alternative is to have students play "Twenty Questions." While they are playing, keep track of the questions asked and the answers given. When the game is over, discuss why some of the questions helped students figure out the answers to the riddles while others elicit no new or useful information.

Determine whether children can distinguish between convergent (factual) and divergent (debatable) questions by following up discussions resulting from a question with an inquiry into the question itself: Is that the only possible answer to our question? Is it the best answer? Children will thus become aware of the uncertainty and ambiguity of the real world. This awareness will be especially useful to VI children, who need to be able to critically evaluate the large amount of secondhand information they receive.

The same hypothetical situations used to develop the first two questioning skills can be used in developing the ability to determine the best person(s) to ask for certain information. If the situation used to motivate the students involved a local issue, let students use their revised questions to interview whoever they feel can give them the best answers.

As a reinforcing activity, use your knowledge of the students' interests and hobbies to make up a list of questions. Ask students to decide who

among their classmates could best answer each question, and then let them test their decisions.

Questioning activities such as those described above can be incorporated into the regular social studies curriculum in a variety of ways. Many activities suggested in typical teachers' guides require students to frame questions and identify people who can answer them.

You can also use questioning activities to develop VI students' understanding of materials and resources not available in their media. When introducing such an item (e.g., a road map or a new piece of scientific equipment), ask students to make two lists of questions. The first list should include questions they would like to have answered about the item, while the second list should contain questions they think the item can answer. You can use the lists in either of two ways. First, you can structure the lesson around the questions, pointing out that what students learn depends on the questions they ask. As an alternative, tell students to save their lists until after the lesson involving the new item. Then ask them to examine their lists to determine how many of their questions have been answered. If some questions have not been answered, ask students to decide who could answer them.

5. Learning Through Pictures and Other Illustrations

A glance through any elementary social studies text will quickly demonstrate how much of the social studies curriculum is based on visual input. Nearly every page contains a photo, graph, illustration, or map. Much of the information students are expected to learn from the book must be acquired from these illustrations, either in addition to or in place of words. The emphasis on visual media is compounded by the liberal use of filmstrips and films. The creation of visual displays, either by drawing or by collecting pictures, is also a commonly used student activity in elementary social studies lessons.

Because illustrations of all kinds are such an integral part of social studies learning, provisions must be made for helping a visually impaired student deal with them. At least three strategies are possible: describing the illustrations, providing large-print copies of the illustrations, and providing tactile versions of the illustrations. How and when these strategies should be applied depends on both the nature of the VI student's vision problem and the nature of the illustration.

Describing Pictures

Many VI students can use pictures; others, however, need to have pictures described to them. One strategy many teachers use in dealing with pictures is to describe them orally to the entire class. If the VI child uses braille, oral descriptions are often necessary because the child's braille text will read "Picture—see teacher." Even when a VI student has a braille description or a large print copy of an illustration, however, it is helpful to both the VI child and sighted classmates to hear the teacher or other students describe the picture. The following three-step procedure is effective in describing pictures:

1. Think about your purpose in discussing the picture. The teaching objective will determine what things shown in the picture should be described first and in the greatest detail. For example, you might show the class a picture of four people canoeing down a river whose banks are covered with trash. If you were using the picture to illustrate group activities, you would first describe the people and what they are doing. On the other hand, if you were discussing pollution, you would first describe the trash along the banks.

2. Provide the children with a statement that will serve as a central focus—an organizer for the mental image they are being asked to build. Identify the most important people and objects in relation to their action/state and the immediate environment. For the previous example, in a discussion of group activities, you might say, "This picture shows two men and two women paddling a canoe down a river." For the discussion of pollution, you might say, "This picture shows pieces of paper, old tires, tin cans, and other trash heaped along the banks of a river."

3. Relate other objects and people pictured to the organizing statement. At this point, you can include details that clarify what is happening in the picture and provide additional information. These details will help the children relate what you are describing to experiences they have had. You may also mention objects shown in the picture which are not central to the teaching purpose but provide incidental visual learning for the sighted children.

When using the three-step procedure, you should remember several other guidelines. First, you should describe the picture in terms of things which the children have personally experienced or manipulated. If the children are unfamiliar with a pictured item, simply naming it will not have much meaning. Actually describing the object, although more difficult than naming it, will be more meaningful. For example, if a picture shows the United Nations emblem, rather than simply naming it, you might say, "This picture shows a map of the world. There is a leafy branch on each side of the map. The two branches meet at the bottom of the map." The facts that this is indeed the United Nations symbol and that the leaves symbolize peace can be brought out later in the discussion.

Describing a pictured object rather than merely naming it will help you follow the second guideline—not to make assumptions or draw conclusions when you describe pictures. It is important that VI children have the opportunity to complete the same cognitive processes that sighted children do. For instance, rather than saying, "This picture shows Juanita depending on Ramon for affection," you might say, "This picture shows Ramon with his arm around Juanita. She is crying as she looks at her doll. One of the doll's legs is broken."

Finally, and perhaps most importantly, describe pictures matter-of-factly, as if for the entire class rather than just the VI student. Don't isolate the VI child by seeming to address him or her exclusively. A good oral description will, in fact, help all the students.

Sighted students will be able to provide much of the detailed information about pictures which their VI classmates will need and enjoy. It should be especially easy for a VI child to understand descriptions supplied by sighted classmates because they will tend to be phrased in terms of the experiences and perceptions of a child. You may even be able to teach intermediate-level students to use a structured approach to describing pictures, such as the one described above. However, students who

cannot use a structured approach to describing pictures can be made more aware of what information is important and useful. The following activity will help develop such awareness:

Blindfold all the students and read a story aloud. While you are reading, hold up the book and mention the pictures, but don't describe them. Then let half the class take off the blindfolds and look at the pictures. Pair each blindfolded student with an unblindfolded sighted or partially sighted student. Let the unblindfolded students describe the pictures. Tell the blindfolded children to ask questions about particular things they wondered about as they were listening to the story.

VI students may not have had much experience with drawing inferences from statements about things shown in pictures. You can help them develop this skill by using a structured "look-at-the-pictures" technique which intersperses descriptions of the action and objects in the picture with questions that lead students to draw inferences. For instance, in a lesson on depending on others, you might describe a picture of a boy getting dressed by saying: "At the top of this picture it says '6:00-7:00.' What do you think that means? The picture shows a boy standing near his bed. The bed is not made up. The boy is wearing blue jeans and a red shirt. His tennis shoes are on the floor beside him, and his belt is unbuckled. What do you think he is doing? Is he depending on anyone in this picture? Where does he get his clothes?" Providing structured models for discussing pictures may also help the sighted children structure their observations.

Remember that maps, graphs, and other illustrations can also be described orally. If your purpose in having students examine such an illustration is for them to gather information from it rather than develop their decoding skills, an oral description would be an appropriate means of presenting the information to the VI student. Oral descriptions of maps can often be supplemented with reference to a tactile globe. The time and effort required to find, make, or adapt a tactile illustration are generally justified only when an illustration cannot be described adequately or a particular decoding skill or basic map concept is being developed.

Enhancing Pictures for Partially Sighted Students

Most partially sighted students will be able to interpret the drawings and photographs in the original or large print copies of the text. A few students may be able to see what is in a picture, but because of the way something is colored, may not be able to figure out what they are looking at. Pictures with shadows or colors that blend into each other tend to be the most troublesome. In addition, some partially sighted students who can see the objects in a picture may not be able to tell whether one object is in front of or behind the other. Some pictures may be too visually

"busy"; that is, they have too many details for the child to distinguish. Thorough understanding of each child's visual condition will help you anticipate these problems and make provisions for dealing with them.

One way of dealing with pictures that might present interpretive problems is to prepare a simplified picture of one with better contrast. For example, if a picture contains too many details, you might trace the picture onto white paper with a broad black felt-tip pen, including only the items most pertinent to the activity. If a picture uses colors that blend together, you can outline the objects in the picture with black ink or photocopy the picture and then color in the outlines (or have a student do so) in contrasting colors. Placing a sheet of amber or yellow matte acetate film over an illustration will improve the contrast in pictures with purple or faded black outlines.

Such techniques should only be used when a picture is essential to developing the concept being taught in the lesson. Even then, such time-consuming preparations are not absolutely necessary; you can usually rely on oral descriptions and discussion to bring out the cogent points.

Using Other Illustrations With Partially Sighted Students

As is the case with photographs and drawings, many partially sighted students will be able to deal with the original or large print graphs, diagrams, charts, and maps. A few students may have color vision deficiencies or losses. If so, check with the resource teacher to find out exactly what colors the student cannot see and what colors he or she may see instead (e.g., all pink, red, and orange shades may look the same or may look gray or brown) and how light affects the child's vision.

Some graphics may be too "busy" for partially sighted students; that is, they may contain too many lines, contrasting colors, or written characters. These illustrations may confuse students with field-of-vision limitations or decrease clarity for students with blurred vision.

Many partially sighted children, like blind children, deal with lots of little parts of an illustration and have difficulty putting the parts into a whole. On the other hand, some partially sighted children—particularly those with blurred vision—see only the main outline or the heaviest, darkest outlines. In many graphics, the darkest outlines may be the words printed on the illustration.

These differences in functioning emphasize the necessity of knowing the particular vision condition of each partially sighted student and how that condition affects the student's ability to deal with certain kinds of graphic presentations. In using graphics, you should first determine whether a lot of light is needed or whether strong light may interfere with performance. Then follow these guidelines for helping students examine maps, graphs, charts, and diagrams:

1. Teach all the students to use the key or legend to organize their examination of an illustration. It's not necessarily natural for students to realize that all roads are black, all rivers blue, etc. Help them realize that the key or legend categorizes the things they are looking for. Students with field-of-vision problems may be especially disorganized in performing such tasks.

2. Teach students to locate a point of reference to work from. This will provide a given area to which they can return if they become confused. The student can keep one finger on this spot, or you can attach a magnet, small weight, colored circle sticker, or pushpin to the spot.

3. Help the student develop the habit of thinking first about the overall shape or area presented; then about smaller, specific areas within the major boundaries; and finally about additional information which the student may or may not need to know. Encourage students to ignore visually distracting information that they do not need.

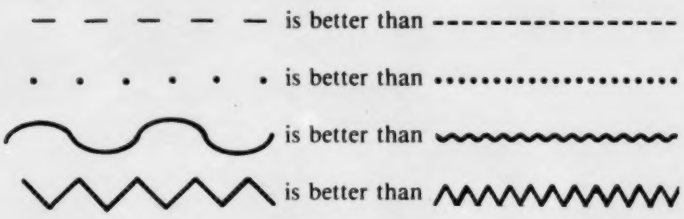
4. Use a structured approach to help students identify what they are looking for. For instance, in a task that requires locating Chicago, you might say: "Chicago is at the south end of Lake Michigan. Find the Great Lakes on your map. They are shown in blue. Find the lake that stretches farthest south. That is Lake Michigan. Do you see Chicago at the south end?" By using this structured approach, you have started with the whole, given the child an easy-to-find point of reference (differentiated by the shape and color), and then focused on the desired location.

If partially sighted students cannot use the illustrations that are available, and you want to adapt illustrations or have students make their own large print illustrations showing the results of research they have done, keep the following points in mind:

1. The illustrations should be as simple as possible.

2. Graphic symbols used to represent large areas should not be visually intense or disturbing. Symbols that present varying shades of gray are effective. Do not use concentric circles, plaids, irregular patterns, or weave simulations. Diagonal stripes are easier to see than horizontal or vertical lines.

3. The best kinds of lines are solid lines of different widths and colors, broken lines with lots of space between the dashes or dots, and gently curved or zigzagged lines. For example:



4. Point symbols should be simple, solid geometric shapes (not outline shapes). Use contrasting colors for the point symbols.

5. If you prepare print labels, use black ink. Purple should be avoided whenever possible. Use a plain, sans-serif type face (one without "feet" or "tails" on the ascenders and descenders) and make sure that the letters do not touch each other. Do not use all capital letters unless absolutely necessary, because they are difficult for students to read.

6. Think about how all the symbols will combine visually when the illustration is complete. Remember, simplicity is the primary rule.

Some useful materials for making large print illustrations are bold-line graph paper; chart-pak transfers for areas, lines, and points; and transparent colored plastics (for use on wall maps to show a country or continent whose borders are not clear).

Using Tactile Illustrations

Reading Tactile Illustrations

Because it is difficult to adequately describe some kinds of illustrations in words for braille readers, illustrations are sometimes done in a tactile form. The most common kind of tactile illustration is the map. In a tactile illustration, materials having various textures distinguishable through touch are used to represent significant features of the illustration. Although this discussion of tactile illustrations is focused primarily on maps, the strategies are generally applicable to tactile graphs, charts, and diagrams as well.

The fact that tactile map reading is a difficult task cannot be denied. The absence of sight as a unifier is a severe handicap. Rather than observing the whole and then considering the parts as a sighted student does, a VI student must observe the parts and construct a whole from these separate observations. However, although using tactile illustrations is not easy, it is far from being a futile or impossible effort. Map reading can be a significant learning experience for the VI student, just as it can be for the sighted student.

Some preliminary work with basic concepts and continued reinforcement of these concepts will help VI students cope with tactile maps. The idea of spatial relationships is crucial to effective map reading. The better children understand their own environment, the better their concepts of spatial relationships will be. Once established through direct experience with the environment, spatial concepts can be reinforced by using three-dimensional models. Such experiences, combined with a good introduction to the concept and characteristics of maps, will help VI children understand what kinds of information can be obtained from maps.

In addition to laying the preliminary foundation for tactile map reading, you can help VI students by making sure that the maps you give them are not too complex. Rather than being specifically designed to be

tactile, maps are often merely translated from print into tactile form, a process which often results in very complex maps which are too difficult for the VI student to use. Examine each map in light of each VI student's map-reading skills before deciding whether to use it.

If students have never used a tactile map before, they will probably be fascinated by the various textures, and they may spend more time asking how various parts of the map were made than they spend reading the map. You can capitalize on this fascination by asking students to find and identify textures in which they are particularly interested. If they become very interested in how the textures are made, you can use their interest to channel their efforts into a map-making activity. Sighted students will probably also be interested in the tactile maps, and they may want to work with VI students in either reading or making tactile maps.

Students' map-reading skills can be developed in a number of ways. First, emphasize the importance of the legend or key in telling the reader what the map is about and how to recognize certain types of information. Give students practice in using keys to find out what information is being presented and what symbols and abbreviations are used. A brailled key may also provide supplementary information through transcriber's notes.

When starting to read the map, have the VI student scan the map from top to bottom, using both hands, in order to determine the overall dimensions and layout of the map. Next, ask the student to choose the most important or familiar piece of information (texture) from the key and locate it on the map to use as a point of reference. The student can then continue locating and identifying other textures, working outward from the point of reference. Although you may wish to vary the pattern of investigation for some maps, depending on how the information is scattered or on how you will be discussing the map in class, the VI student should learn a general technique which he or she can apply systematically to any illustration.

Many map-reading tasks involve following lines (rivers, boundaries, etc.). A useful line-tracing technique is to follow a line with both hands. When the line branches, the VI student can hold one hand on the branching point and explore the various options with the other hand. In this way, the place will not be lost if a wrong branch is followed.

Remember also that tactile maps should be oriented horizontally, preferably so that the directions on the map correspond with the correct compass directions. Tactile maps should not be hung on the wall.

Adapting and Making Tactile Maps

If you are using a map that is not commercially available in tactile form, you can adapt it by attaching tactile materials. However, don't try to make everything on the map tactile; adapt only the most significant

elements. Students simply cannot process as much information on one map through touch as they can through sight.

You can also make tactile maps from scratch. Remember that any map you make or adapt should have a key explaining the symbols and textures used. Also remember that outlining shapes will not be as effective as providing a solid texture for the entire shape. The following materials can be used effectively in making and modifying maps:

1. For bases—cardboard, braille paper, regular paper, plastic, corkboard, Cellotex (large sheets of ceiling tile).
2. For semismooth areas (secondary or background information)—paper toweling, polyester double-knit fabric, dimpled cardboard, felt.
3. For medium-smooth areas—textured polyester double-knit fabric, Naugahyde, heavy-weave linen.
4. For tactilely "bright" areas (very significant information)—sandpaper, dotted-swiss fabric, needlepoint backing, ribbed fabrics, flocked wallpaper samples.
5. For lines—cord, macrame linen, carpet thread, cotton cable, lines made of dried glue, plastic-coated wire, candlewick.
6. For points—jewelry jump rings, the circles punched out by a hole punch, coin shapes cut out of cardboard, nail heads (the kind used to decorate blue jeans).

Remember that you need not do all the adapting and constructing work yourself. Making and adapting tactile maps will be valuable learning experiences for sighted students.

If VI students are to make maps, they should either be very familiar with the area being mapped or should have some type of a referrent, such as a three-dimensional model. The materials listed above can also be used by students. If sticky sponge paper is used as a base, students will not have to cope with pasting as well as placing symbols in the correct places.

Be sure to save all maps that are made or adapted, as they may be useful again later in the year.

Making Graphs and Diagrams

Tactile graphs are somewhat easier to make than maps. Bar graphs can be made using braille graph paper and plastic mending tape, Dymo label tape, thin fabric strips, or different kinds of ribbons. Line graphs can be made with braille graph paper and any of the materials suggested for making lines on maps.

There are several ways of making a simple raised-line graph or diagram:

1. Use a braille tracing wheel or regular sewing tracing wheel to trace an outline. Work from the back of the paper, placing it on a hard rubber cushion (braille tracing wheel) or a newspaper (regular sewing wheel).
2. Use an empty ballpoint pen on a sheet of polyester film (Mylar). The sheet should be placed on a rubber-coated clipboard while you are drawing. A raised line will form on the top of the Mylar sheet (the side you are

drawing on). Kits including the polyester sheets, pen, and clipboard are commercially available (see the listing of special aids in Appendix C).

3. Draw on aluminum diagramming sheets with tracing wheels and other sharp tools. Each tool will produce a different kind of line.

Be sure to save all graphs and diagrams that are made for the VI student.

Using Films and Filmstrips

Many social studies materials include films and filmstrips or provide lists of recommended audiovisual materials. Such materials should not be avoided simply because you have a VI student in the classroom; they should be thought of as additional visual learning aids that require some adaptation. If possible, use materials that are accompanied by sound tracks. If time permits, preview the film or filmstrip to determine how appropriate it is and what visual information will need additional explanation. When you show a sound film, provide visual information in a discussion after the film. In the case of a filmstrip, you or sighted students can describe the frames as you go along, using the picture description techniques presented at the beginning of this section.

Arrange the room so that partially sighted students can sit in the areas best suited to their visual needs. For some students, this will be close to the screen; for others, it may be near the light source or far from the light source. Discuss the best seating arrangement for each child with the resource teacher. If you establish a standard arrangement that the students can automatically move into when you tell them you will be showing a film or filmstrip, you will eliminate the necessity of directing partially sighted children to move their chairs and thus avoid drawing unnecessary attention to them.

Adapting Drawing and Bulletin Board Activities

Many social studies activities involve creating visual displays, either by drawing or by collecting pictures for a bulletin board. Most activities that require drawing pictures can be adapted to include options for students who cannot or do not want to draw pictures. It is probably best to let students decide for themselves whether they want to draw or do an alternative activity. Although partially sighted students may be able to draw pictures, they may be embarrassed by their drawings. Younger children may not be too concerned about how their drawings look, but older students may be very sensitive about the appearance of their pictures. Permitting students to decide for themselves will allow those who would feel embarrassed to select another option. The same alternatives should be made available to sighted students.

Alternatives to drawing might including writing a word picture, song, or poem; conducting a role-play activity with classmates; modeling in clay; constructing a model with building toys or other material; and

drawing with a screen board. A screen board can be used with very low-vision or no-vision students who want to participate in a drawing activity. You can prepare a screen board by laying a piece of ordinary window screen on top of a 10 inch x 10 inch square of particle board. Tape the edges of the screen to the sides of the particle board with masking tape. To use the screen board, place newsprint on top of the screen, tucking the sides under to hold it in place. Coloring with crayons on the newsprint will produce textured lines.

Several ways of adapting bulletin board displays for VI students are possible. The most meaningful option, which is not always feasible, is to develop a three-dimensional display of objects to supplement the bulletin board. Other options are suggesting that a VI student request help from family members in finding pictures or work with a sighted classmate. Braille or large print labels and explanations can be prepared, or students can tape a narration to accompany the visual display. This narration could also be played to other classes or visitors. Note, in preparing visual displays, that picture collages are difficult for partially sighted students to interpret. Displaying each picture separately is more effective.

6. Learning Through Group Activities

Social studies educators have long advocated the frequent use of small- and large-group activities in teaching social studies. Small-group discussions, games and simulations, group projects, and role playing have been demonstrated to be effective and motivating ways to involve students in the content of social studies.

The value of group activities is especially great in a classroom that numbers a visually impaired child among its students. Often, turning an individual activity into a group activity in which tasks can be assigned to various group members eliminates the need for special materials or extensive adaptations. More important, small-group activities provide a VI student with more time to examine objects, more opportunity to operate as a member of a team, more flexibility in seeking help or support from peers rather than from the teacher, and a greater role in completing the group project.

Small-Group Activities

How students are grouped depends on the nature of the activity. For discussion activities, groups of five to ten children may be desirable, while such projects as building models or making displays usually work better if two or three children work together.

At the beginning of the school year, when sighted students are still adjusting to having a VI student in the class and the VI student is adjusting to his or her classmates, you may want to give careful attention to choosing partners or teammates for the VI child. The sighted partners must be willing to allow the VI child to do a fair share of the work and must be willing to work with the VI child without feeling "stuck." To ensure that a workable partnership is formed, you may wish to preassign partners or closely monitor the selection of partners until all class members are comfortable together. You may also need to monitor group activities early in the year to ensure that the VI student is participating actively.

As the school year progresses, grouping of students should be done in such a way that the visually impaired child has an opportunity to interact with each classmate. However, you may find that there are certain classmates with whom the visually impaired student does not develop a particularly good rapport. Such conflicts will probably have less to do with the VI child's vision problem than with basic personality differences. Such

personality conflicts are best treated as you treat them in any other students. Don't demand that sighted students accept and include a visually impaired child simply *because* he or she has a vision limitation, and don't assume that a VI child will like every classmate with whom he or she works.

Role Play and Dramatization

Role playing and dramatizations are frequently used in social studies classes. Both can be used very effectively with VI students with minimal adaptation.

If students are required to research their roles prior to the actual role playing or dramatization, and if no sources in the VI student's medium are available, you can assign two children to each role. The VI student should be paired with a sighted classmate who can read information aloud while the VI student takes notes. When the research has been completed, have the children enact the situation twice, giving each child a chance to play his or her assigned role. This is a natural strategy for role playing, in which alternative scenarios are often acted out to allow students to examine the consequences of varying feelings, values, and decisions. This strategy also works well with dramatizations of historical events, since it reinforces the concept that an event that really happened can be interpreted in more than one way.

Enriching the role playing or dramatization by including props and costumes will be as meaningful for VI students as for sighted students. However, VI children who will be participating in the role playing or dramatization must be thoroughly familiar with the layout of the set before action begins. VI students who will be observing should also have a chance to examine props and costumes.

Encourage students to use sound throughout their role playing or dramatization so that the VI child who is a spectator will have a constant flow of input. If students are interested in making a background sound track, provide them with the necessary taping equipment. If students wish to use pantomime, arrange to have someone describe what is happening to the VI child, perhaps by assigning one student to be the "news reporter" who keeps the "public" informed.

7. Learning Through Out-of-Classroom Experiences

Because a major function of social studies is to expand students' knowledge about and appreciation of the universe, some of the most important learning in social studies takes place outside the classroom. Whether the outside activity is an individual research project that requires the student to move beyond the classroom or a group field trip, out-of-classroom experiences should not be eliminated or reduced because a visually impaired child is among the students.

Out-of-Class Resources

Many activities in social studies involve doing research with sources other than textbooks or equipment available in the classroom. In an inquiry-oriented program, such activities are of course central to the program. Other curriculum materials may label such activities as "optional." In either case, out-of-class research activities are critical in giving students experience in learning how and where to acquire information. Such experience is as important for a VI student as it is for sighted classmates.

Often, students' searches for out-of-classroom sources will take them to school or public libraries. In using these facilities, all students should be made aware that libraries sometimes have sources in media other than print—"talking books" on tape, films, special story reading times, and other kinds of information or entertainment programs. Students should be encouraged to use all these resources in their search for information.

VI students should also become familiar with the special resources available to them—for example, the local branch of the library for the blind and handicapped and Recording for the Blind. The resource teacher can give you this information. Note, however, that materials ordered from such sources may take considerable time to arrive. The VI student may therefore require some advance notice of research assignments if you want the student to locate appropriate-medium sources rather than using a reading partner or reader.

Learning to use a reader is also an important skill for the VI student. Consult the resource teacher to find out whether the VI student has used readers and, if not, how you should introduce the student to their use.

All students should be encouraged to seek information from sources other than libraries. Learning to use the telephone to find information is an important skill for everyone and critical for a visually impaired person. Students should also learn to obtain information from human resources through interviewing. Gathering information in this way allows students to practice their questioning skills and teaches them that not all information needs to be acquired through the printed word.

Many inquiry or research activities may not need adaptation because they can be accomplished in a variety of ways. For example, in researching how the local community has changed during the past 50 years, some sighted students may want to analyze old newspapers in the library, students who learn best through visual media can compare and contrast photographs, and VI students can tape interviews with senior citizens. However, at some time or another, all students need experience in using all these strategies. The VI student should not rely solely on interviewing.

Field Trips

Field trips can serve not only as sources of information but also as multisensory experiences for students, particularly if you carefully select the places you plan to visit and make some special arrangements beforehand. You should inform officials at the field-trip site that one or more visually impaired students will be among the members of your group. Ask the officials if it would be appropriate for the class to get closer than usual or to actually touch some of the exhibits, and invite additional suggestions for making the experience more meaningful for VI students. If possible, preview the trip yourself, noting what will be particularly effective for VI students and what will need more explanation. Take note of or ask about any mobility considerations.

Give all the students some orientation about the place they will be visiting on a field trip. Advance orientation will be especially helpful to VI students in mentally organizing the information they receive on the trip. Remember that vision provides an organizer for a sighted student, while a VI student must construct an image of the whole from discrete parts directly experienced or orally described. A framework for organizing information is thus helpful.

Assign a sighted student to be a guide for each VI child, if necessary. The student selected should be willing and able to provide oral descriptions of things seen on the field trip. You may need to supplement these descriptions. Although a VI child may hear, smell, or feel things on the field trip, what these things are may not be apparent, particularly since the environment will be unfamiliar. The sighted children may not realize the difficulty experienced by a VI child in identifying new things without sight. Each student selected as a field-trip guide should be given a quick review of the sighted guide techniques before the trip and a chance to practice if necessary.

Guest Speakers

Asking a resource person from the community to visit the classroom is a common strategy in social studies classes. Some advance planning with the visitor will maximize the benefits of the visit for the VI student.

Inform the visitor in advance that your class includes one or more visually impaired students. If the person's topic lends itself to displaying some hands-on items for children to examine, encourage the visitor to bring such items to class. Work with any visitors who use visual aids to develop a means of presenting them in a way that will be interesting to all the students, including the VI student. Ask the visitor to supply any handouts in advance so you can have copies prepared for the VI student.

When the guest speaker arrives, set up the classroom so that all students can be easily involved in a question-and-answer session with the speaker. A circular arrangement may be best if that is feasible.

8. Ensuring Success

The information in this sourcebook is intended to facilitate the full integration of visually impaired children into classrooms with sighted children. Although some of the learning activities typically found in a social studies curriculum need modification if they are to be effective with a visually impaired child, any kind of activity can be adapted so that a VI child can participate meaningfully in the classroom. The kind of adaptation required depends on the VI child's particular vision condition, the nature of the activity, and the objectives of the lesson or unit. Regardless of the specific strategies you select, three general strategies are critical to ensuring that a VI student has a successful experience in a mainstreamed classroom.

Strategy 1: Plan Ahead

Every teacher understands the importance of planning ahead, but with a VI child in the classroom advance planning is essential. It is necessary to plan activities a few days ahead to allow time for preparing any special materials which must be brailled, typed in large print, outlined, and so forth. Many frustrations are in store for both VI children and teachers if proper materials are not available when needed.

It is also important to think ahead about what materials and equipment the VI student will need for each day's lesson. If the student is a braille reader, the correct braille textbook volume and any supplementary volumes should be available when the class period begins. A large print reader will also need special books. Any special equipment (braille writer, magnifier, calculator, lamp) that is needed should be set up in advance so that the class is not delayed while the VI child prepares to participate.

Strategy 2: Don't Overadapt

Although this sourcebook has discussed techniques for adapting many common social studies learning activities, don't adapt an activity unless it is absolutely necessary to do so. As much as possible, the VI student should participate in the same way that sighted peers participate.

How much and what you adapt will depend largely on the vision condition of the VI student in your class. A braille reader who has almost no vision will require more numerous and extensive adaptations than a child

who can read regular print but has certain perceptual limitations. Be sensitive to what the student *can* do. When the student's vision problem makes an assigned task too difficult or frustrating, you may need to introduce a modification.

Whenever possible, offer the options developed for the VI student to other children as well: doing so will enhance learning for all the students. For example, if the class is learning about the characteristics of mountains, let all the students work with a three-dimensional model of a mountain. Don't isolate the VI student by providing special strategies that he or she alone is permitted to use.

Remember also that many effective learning activities—among them inquiry, interviewing, role playing, and discussion—require little or no adaptation. You can reduce the amount of adaptation needed by using these activities to their maximum advantage.

Strategy 3: Work Cooperatively With the Resource Teacher

Whatever the designation given the specially trained teacher of the visually impaired in your school system, establishing a cooperative working relationship with that teacher will be of enormous benefit to you, the resource teacher, and the VI student. The resource teacher has a store of knowledge about materials that are available and strategies that work well with VI students. Perhaps more important, he or she probably knows a great deal about the particular visual impairment of the student in your class and about how that impairment affects the student's performance and personality—information that will be critical to you in deciding how many and what kinds of adaptations will be needed. You, in turn, can provide the kind of day-to-day feedback on the VI student's performance which the resource teacher needs to determine whether the student needs additional help.

Remember that you and the resource teacher are equal partners in the educational system. The more closely you work together, the more effectively you can provide high-quality learning experiences for all the students in your class.

Appendix A
MAVIS-Adapted Materials

The materials listed below have been adapted by the MAVIS project staff and consultants for use with visually impaired children in mainstreamed classrooms. Both student and teacher materials have been adapted. Selected student materials have been transcribed into braille, large print, and audiotape. Teacher materials have been provided with inserts containing suggestions for making teaching activities more effective with both VI and sighted students. For more information on the MAVIS-adapted materials, contact Project MAVIS, 855 Broadway, Boulder, Colorado 80302 (303/492-8154).

Windows on Our World series (copyright 1976 by Houghton Mifflin)
- *Things We Do*—Grade 1
- *The World Around Us*—Grade 2
- *Who Are We?*—Grade 3
- *Planet Earth*—Grade 4
- *The United States*—Grade 5
- *The Way People Live*—Grade 6

Silver Burdett Social Science Series (copyright 1976 by Silver Burdett)
- *Living in Families*—Grade 1
- *Living in Communities*—Grade 2
- *People in Regions*—Grade 3
- *People and Ideas*—Grade 4
- *People in the Americas*—Grade 5
- *People and Change*—Grade 6

Ashanti Family of Ghana kit (copyright 1972 by Selective Educational Equipment)

Paddle-to-the-Sea kit (copyright 1974 by American Science and Engineering)

Appendix B
Guidelines for Adapting Social Studies Materials

The strategies presented in the body of this sourcebook provide the core for adapting any standard social studies curriculum materials. These strategies, which cover most of the common activities suggested in such materials, were developed during the adaptation of the materials listed in Appendix A. In the process of adapting those materials, Project MAVIS staff and consultants also developed a procedure for adaptation and a list of typical social studies lesson topics which have particular relevance to visually impaired children. Used together, the adaptation procedure, core of strategies, and list of important topics provide you—the regular classroom teacher—with a relatively simple means of successful adaptation.

The Adaptation Procedure

The following are the eight basic steps in the adaptation procedure:

1. At the beginning of the year, become familiar with the format of the text the VI student will be using. If the student uses regular print, this task will be relatively simple: you will need only to check the regular print copy of the text to see if it will present any special problems. Some publishers print a great deal of the text on colored paper or over photographs. Others do not number every page. Such factors can cause difficulties (for sighted as well as partially sighted students), and you should be aware of them in advance. If the student uses large print, take a few minutes to look through the large print text, noting the quality of the photo reproduction and any potential trouble spots. The student who uses large print may appreciate having a regular print copy of the text as well if photo reproduction is poor in the large print copy. If the student uses braille or tape, the resource teacher can explain standard ways of indicating page numbers, whether picture descriptions are included, and other important information.

2. Plan for an entire unit at a time. By planning an entire unit in advance, you can select the one or two major student-involvement activities most appropriate for your class, plan meaningful adaptations for the visually impaired students, and gear activities in other lessons around those major activities if desired. This system will also be helpful to the

resource teacher, as it will permit plenty of advance notice for ordering special materials.

3. Do the actual adaptations a lesson at a time. Read through an entire lesson, selecting the activities you wish to use and noting any specific difficulties or opportunities the lesson presents for use with visually impaired students. For example, if a lesson discusses albinism in a way that you feel might be embarrassing to a VI student who has a related visual impairment, some special adaptations may be required. If a lesson introduces maps, you may want to check with the resource teacher to determine whether the student has had previous experience with maps. Some lessons may also present particular opportunities for use with visually impaired students. For example, if you know that your VI student has little knowledge about shopping and supermarkets (perhaps due to parental restrictions), you might plan to include a field trip to a supermarket in a lesson about how goods go from the farm to the table.

4. Go through the activities you have selected and determine what adaptations will be needed. Suggestions for adapting many of the activities will be available in this sourcebook. Note any special materials you will need for the adaptations and list them in three groups: those you must supply, those the resource teacher can supply, and those the students can provide. Also note any advance preparation that will need to be done, either by you or the resource teacher. If a lesson will require several days of preparation, make a note in a previous lesson that you will need to start preparing at that time.

5. Make a note of any illustrations which are particularly important to the lesson. You may wish to jot down significant elements of the pictures which will need to be brought out in discussion.

6. When you have gone through every lesson in the unit, make a list of all the special materials that the resource teacher will need to supply, with the approximate date on which you will need each item. Arrange a time to give this list to the resource teacher and to discuss any particular questions about activities in the unit which you feel may pose special problems for the VI student.

7. If any activity in the unit requires that the VI child obtain help from family members, you may wish to call the parents in advance to explain the activity to them. Remember that although parents are usually willing to provide assistance in such tasks as gathering pictures, they do have other responsibilities and thus should not be asked to assume a large burden. Over-reliance on assistance from parents may also cause resentment on the part of sighted students.

8. If possible, preserve the notes you have made on each lesson in a form that could be used by other teachers. Although doing this may require a few extra minutes of your time, it will be well worthwhile if the expertise you have gained in teaching a visually impaired child in a mainstreamed classroom can be passed along to another teacher.

Lesson Topics Important for the VI Child

Virtually all social studies content is appropriate for visually impaired students. However, these students' needs in learning to function socially and to live independently make some topics typically taught in standard social studies programs particularly important for them. You may wish to consider these needs in deciding which activities and ideas within a unit to stress. The resource teacher may be able to suggest others in addition to those listed below:

1. Human likenesses/differences. Many VI students feel that their visual impairment makes them irrevocably different from their sighted peers. They often experience feelings of rejection, loneliness, and fear without realizing that all humans experience these feelings. Totally blind students may not understand the physical similarities among people either. Developing the idea that all students are alike in some ways and different in others will thus be important in helping the VI student develop a positive self-concept.

2. Responsibility for one's own actions/decision-making. Parents, teachers, and other adults who interact with visually impaired children often provide these children with unnecessary assistance, permit them to engage in what would be regarded as socially unacceptable behavior if exhibited by a sighted child, and excuse them from the normal chores and responsibilities of children their age. In addition, adults often make unilateral decisions for VI children based on what they assume is necessary for the children's well-being. These factors contribute to some VI children's lack of a sense of responsibility for self and poor decision-making skills. Lessons which focus on the fact that humans are responsible for how their actions affect themselves and others are thus useful, as are lessons which enhance students' decision-making skills.

3. Functioning of groups. Many VI students have less experience with groups than do their sighted peers. A poor self-concept on the part of the VI student, parental over-protection, or reluctance on the part of sighted persons to interact with a disabled person may all be contributing factors. The result may be a serious handicap in the social functioning of the VI student. An opportunity to learn about and participate in group activities is thus beneficial. To function fully in the sighted world, the VI student must understand the roles which group members are expected to fulfill, including adherence to rules. Because VI students are often excepted from rules or are unaware of them because they cannot see the visual reminders, they often do not understand that rules apply to everyone. This is another facet of learning about groups which will be particularly useful to the VI student.

4. Means of nonverbal communication. Because they cannot see the facial expressions, gestures, and other forms of body language used by sighted people, VI people often do not realize the importance of these

forms of communication. In addition, they often do not use such forms of communication appropriately themselves, since they cannot see other people to model from them. Because these types of communication often do convey important information and because their appropriate use contributes to social acceptance, it is important that the VI student gain some understanding of facial expressions and gestures. Opportunities for modeling and practice of expressions and gestures are also important.

5. Sources of learning. Almost every social studies text includes lessons on various sources of information. These may vary from direct observation with the senses, to questioning skills, to use of resources in the community. Because one major source of information is limited or unavailable to the VI student, all of the other sources take on added importance. It is vital that VI students develop good observation skills with the other senses, learn how to elicit desired information through good questions directed to an appropriate source, and understand what resources are available in their community. Practice in all of these areas will always be beneficial.

6. World of work. Sighted students gain much of their understanding of the world of work through sight. For many VI students, this source of information is not available. They must therefore learn about the variety of jobs available, the skills needed for various jobs, the reasons that people work, and the qualities of a good worker through other sources. These understandings are critical to developing a viable career plan. Lessons dealing with these topics will thus be very useful, particularly at the intermediate level.

7. Basic economic/consumer concepts. For a VI student to live independently, he or she must have a good understanding of basic economic/consumer concepts. Lessons which introduce these concepts and relate them to students' lives will be vital in developing critical independence skills.

8. Spatial/environmental awareness. For VI students to develop good orientation and mobility skills, they must have sound concepts of space and knowledge of their environment. Often this is not the case, however, as their exploration of space and the environment is frequently restricted. Lessons which help develop spatial and environmental awareness are often used to introduce map skills; these lessons will thus serve double-duty for the VI student, enhancing both orientation and mobility skills and map skills.

Appendix C
Special Aids for Teaching Visually Impaired Students

A number of aids for teaching social studies have been designed specifically for use with visually impaired students. These aids are available from both commercial organizations and public agencies. This appendix contains a partial list of the available aids. The resource teacher may have many of them on hand. If not, she or he can show you catalogs from the various agencies and work with you to order those that would be particularly useful to you. Special funds are available for ordering materials for disabled students. The resource teacher can explain the use of these funds.

The American Printing House for the Blind (1839 Frankfort Ave., P.O. Box 6085, Louisville, Kentucky 40206) is perhaps the largest supplier of aids for the visually impaired. APH produces aids for teaching geography, including braille and large print maps, atlases, and globes; dissected maps; landform models; work trays; and mileage scales. APH also provides special materials for making tactile maps and graphs. These materials include braille and bold-line graph paper in various grid sizes, a graphic aid for mathematics (graph board); and raised-line drawing kits. APH's catalog provides a complete list of all the aids available as well as a special list of aids for teaching geography. Materials available in all media and sources of materials nationwide are listed in APH's *Central Catalog*.

Raised-line drawing kits are also available from Howe Press (Perkins School for the Blind, 175 North Beacon, Watertown, Massachusetts 02172). Sticky sponge paper, which can be used as a base for tactile maps, is available from the Tackmer Corp. (4700 E. Sunny Dunes, Palm Springs, California 92262).

The American Foundation for the Blind (15 W. 16th St., New York, New York 10011) also produces some useful materials, among them braille Scrabble sets and crossword boards. The AFB catalog, *Aids and Appliances*, may be of interest to you.

Books and magazines are produced in braille or tape by several agencies, among them APH, the Library of Congress Division for the Blind and Physically Handicapped, National Aid to Visually Handicapped, and Recording for the Blind, Inc. The Library of Congress has a wide variety of materials available in recorded form. To determine what is available through the Library of Congress, contact the resource teacher

or the state or regional library for the visually impaired which distributes Library of Congress materials in your area. If you do not know what library this is, the resource teacher or the state department of education will be able to give you the name and address. The Library of Congress also publishes a catalog of all the magazines available in special media (Reference Circular 76-2) which may be helpful to you. Some available periodicals which may be useful in teaching social studies are *Consumer Reports, American Heritage, Newsweek,* and *U.S. News and World Report* (tape); *Consumer's Research* and *My Weekly Reader* (braille); and *National Geographic* (braille and tape).